Ocean Observatories Initiative

Cyberinfrastructure
Integration Architecture

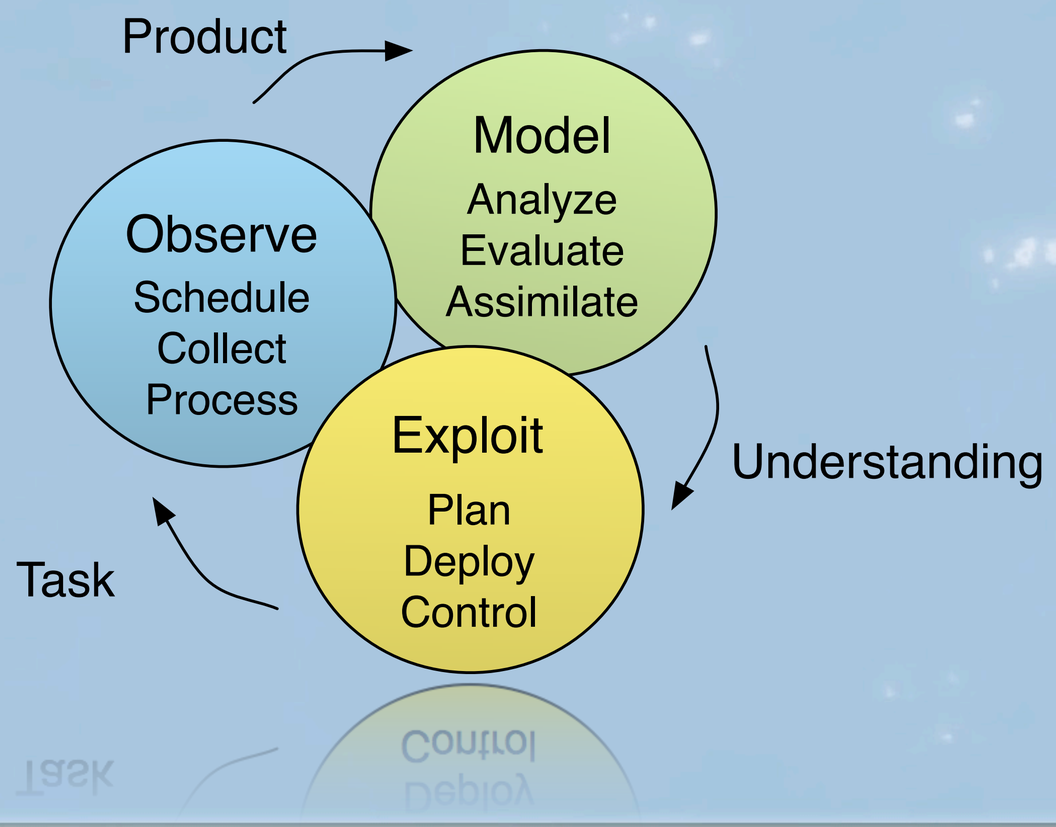
NOAA IPT Team Meeting

August 11, 2009

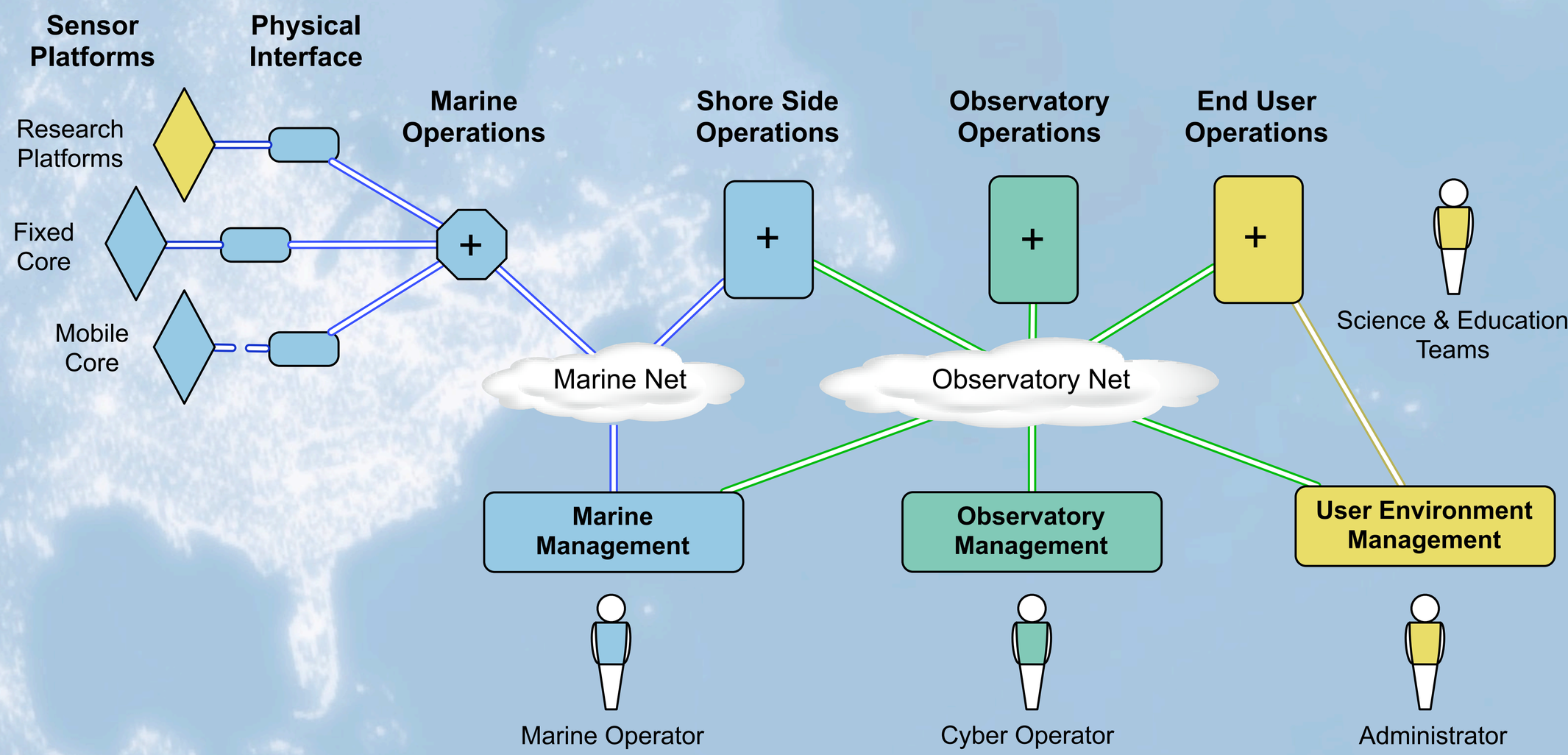
Science & Education Operations

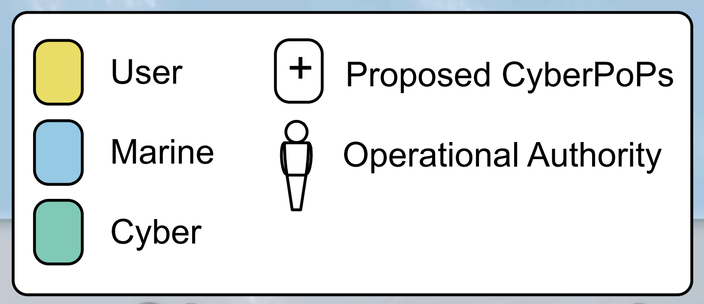
- Interactive Ocean Observing
- Interactive Ocean Modeling & Data Assimilation
- Automated Data Product Generation
- Discipline-Driven Semantic Organization of Data
- Interactive Instrument Network
- Integrated Observatory Management
- User-Driven Integration of Resource

Observatory Activity Model



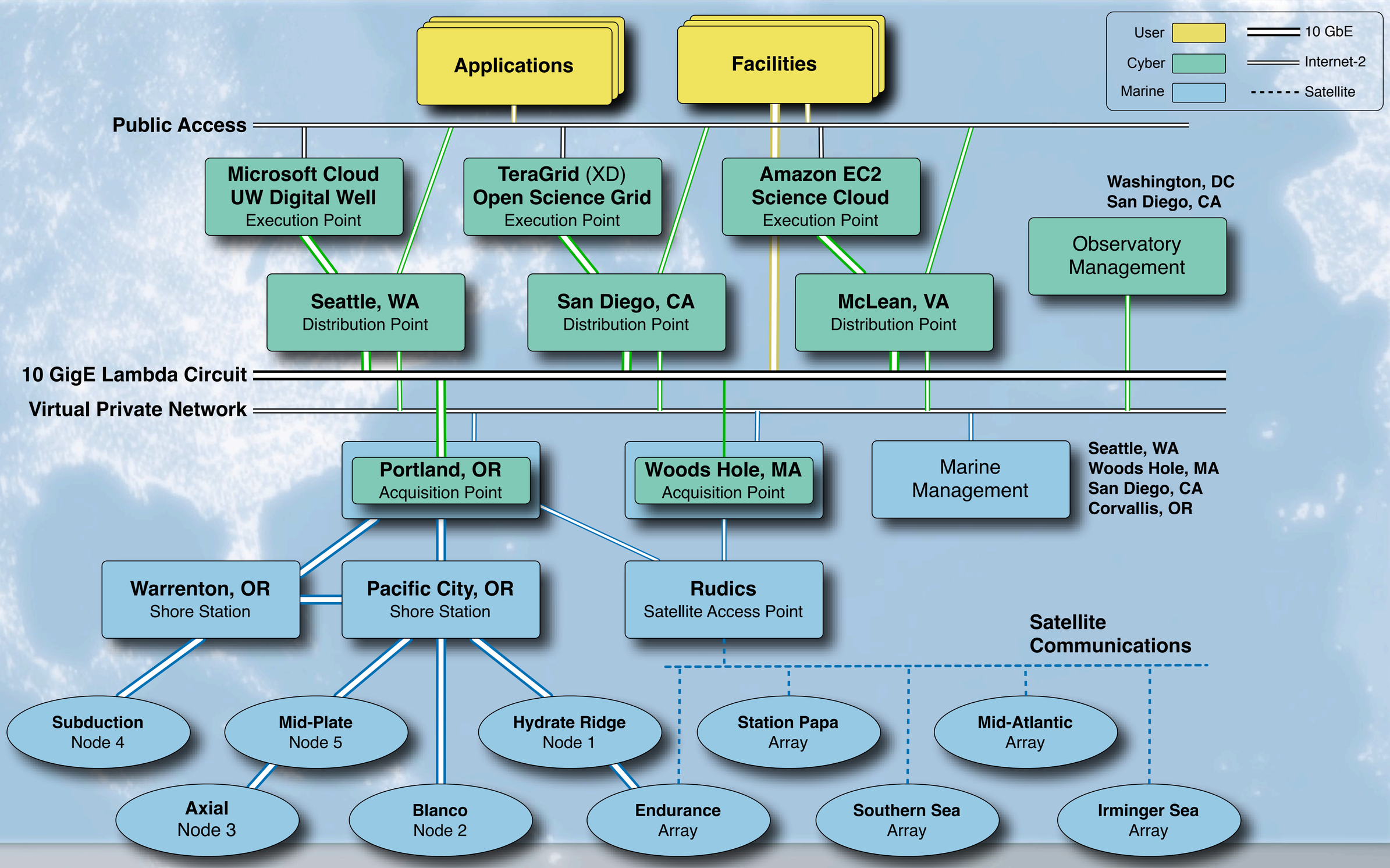
Integrate Observatory Network



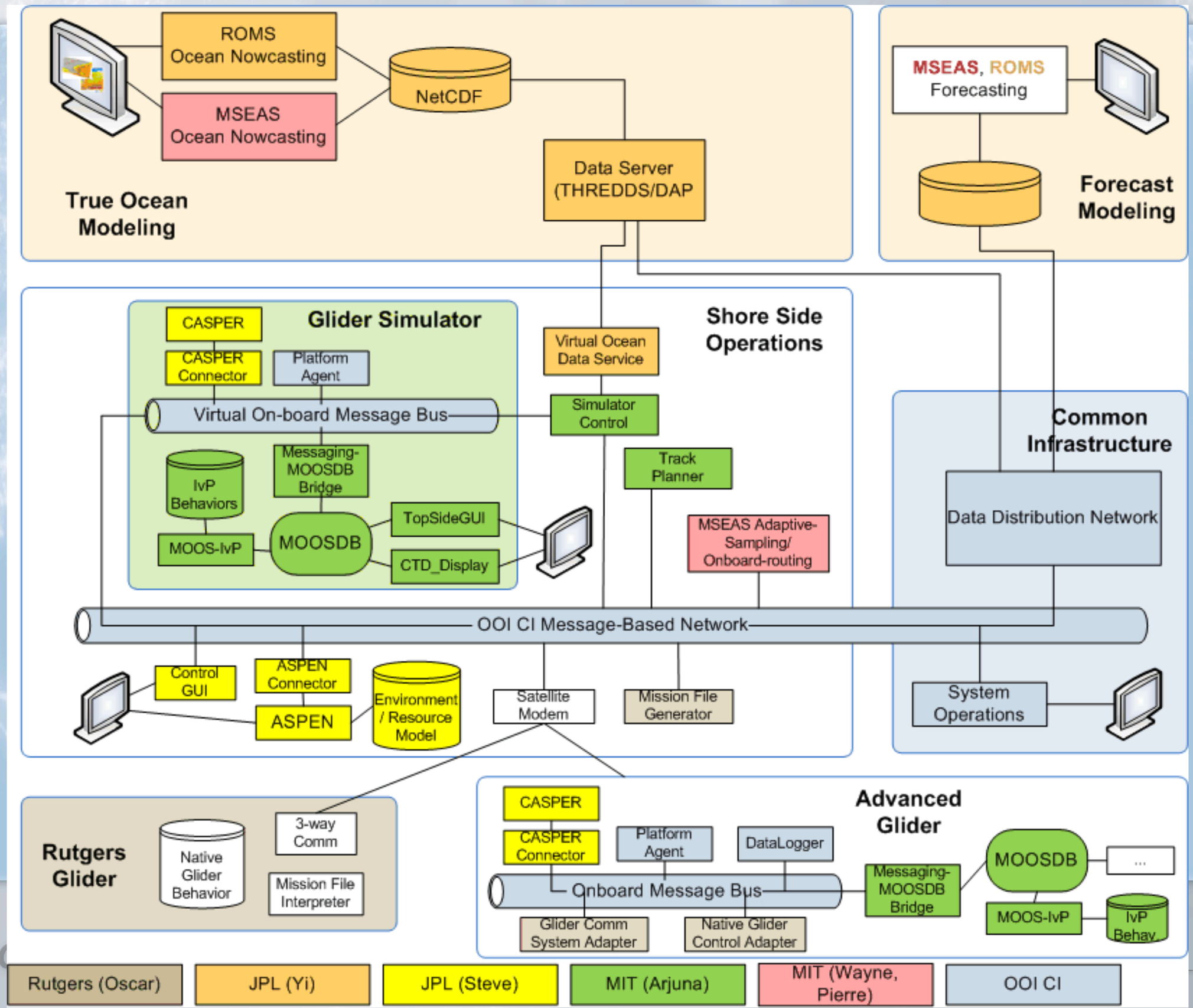


Ocean Observatories Initiative

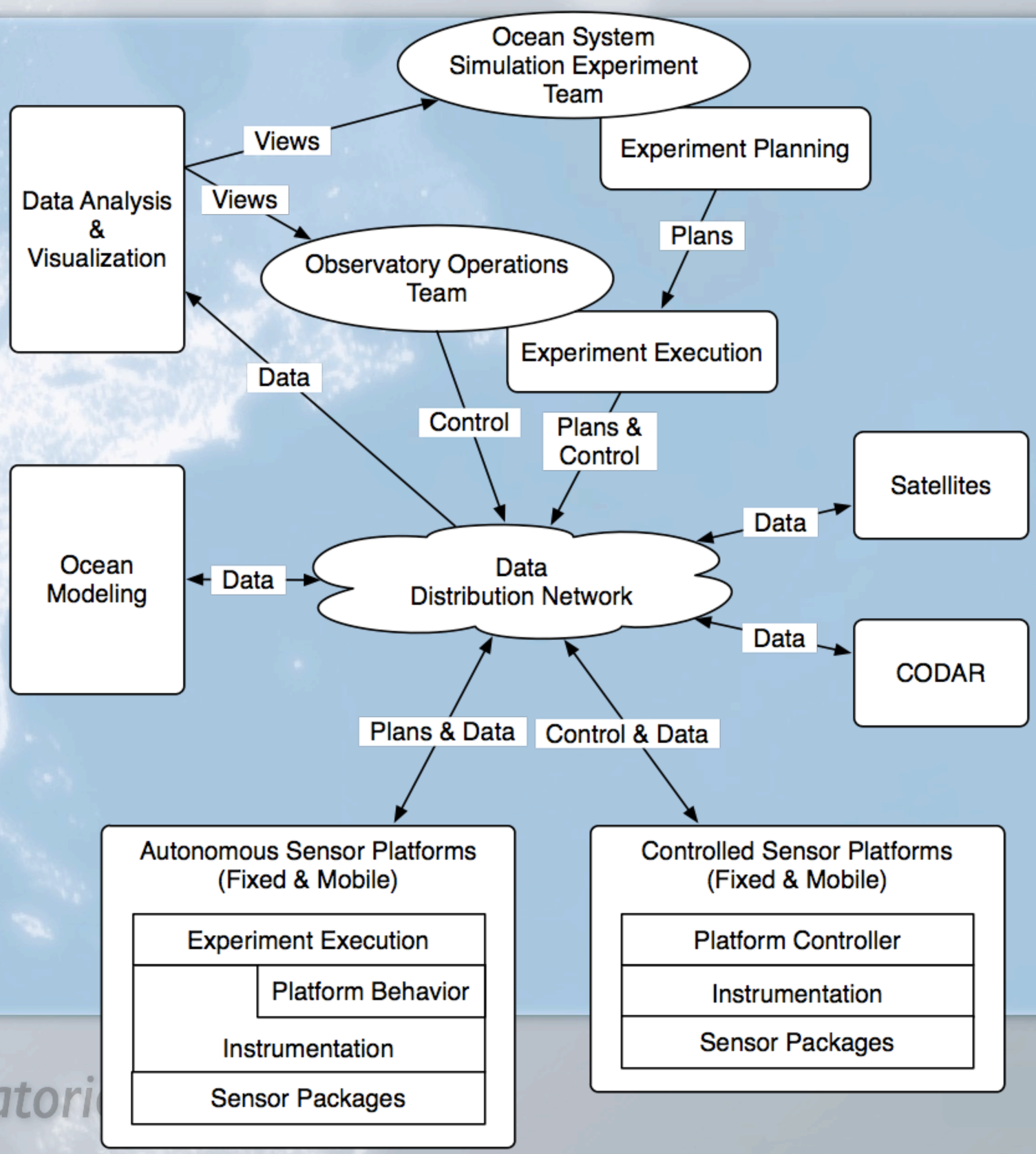
Implementation



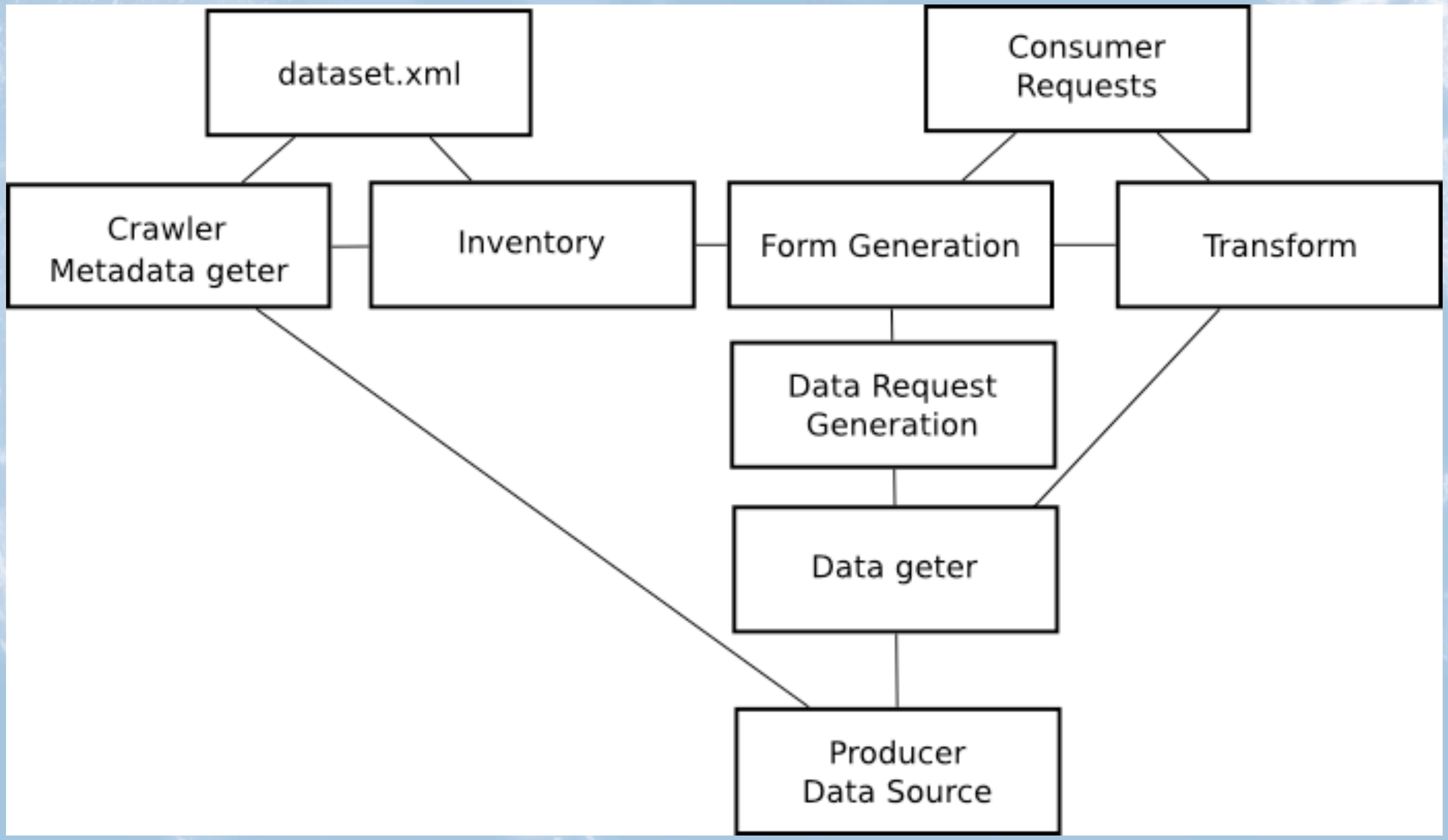
OSSE Prototype



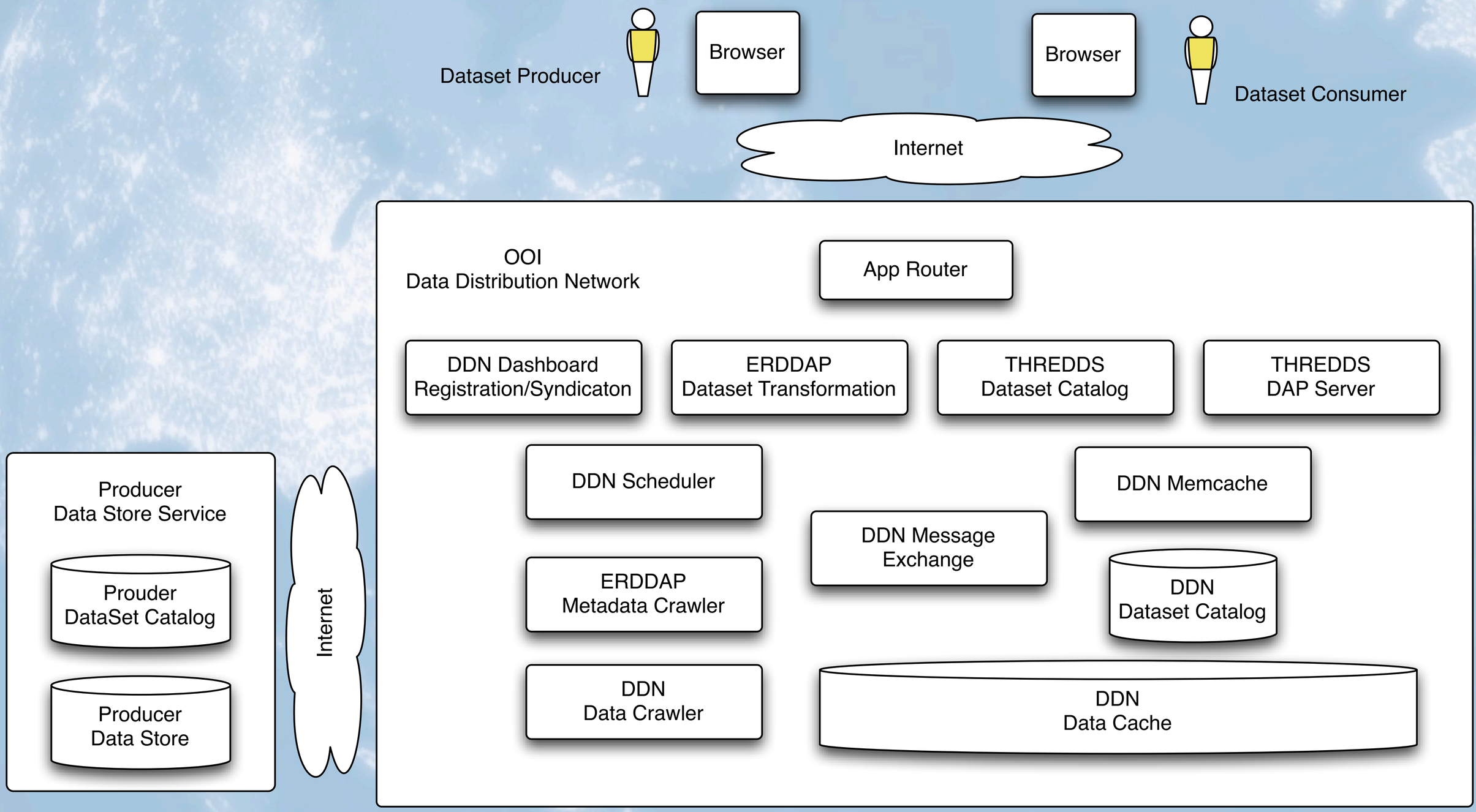
OSSE Architecture



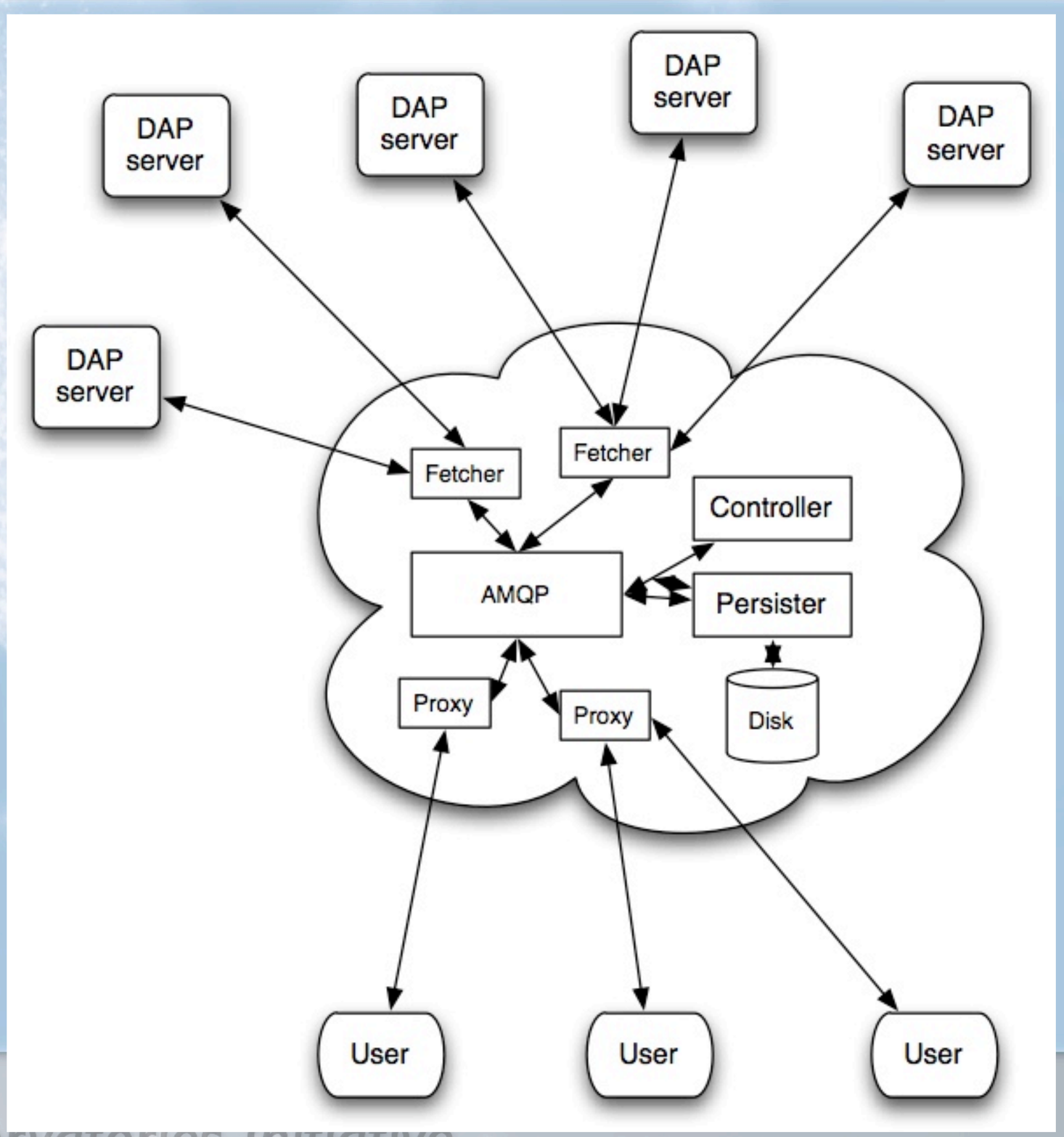
ERDDAP Decomposition



Data Exchange Prototype 1

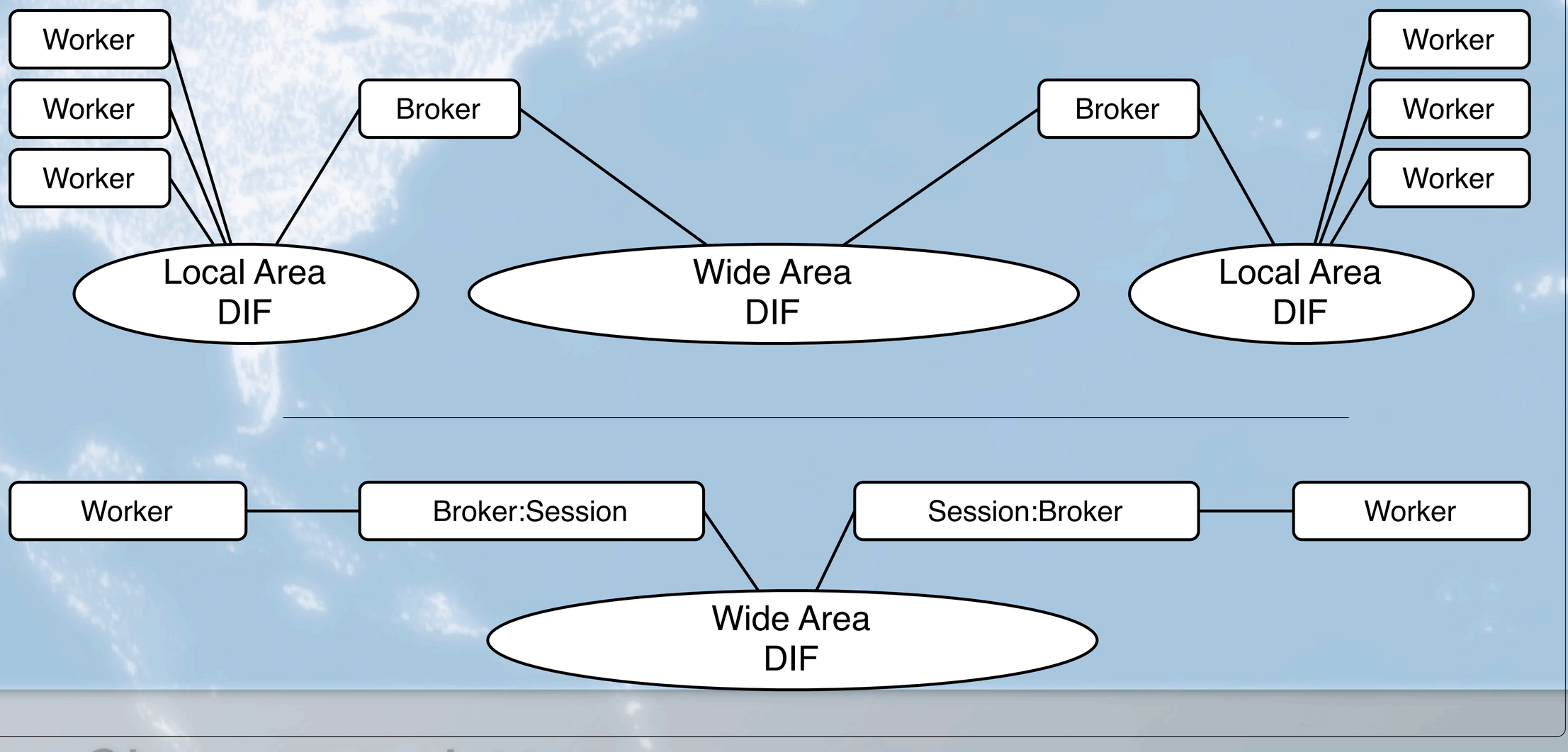


Data Exchange: DAP Cloud Service

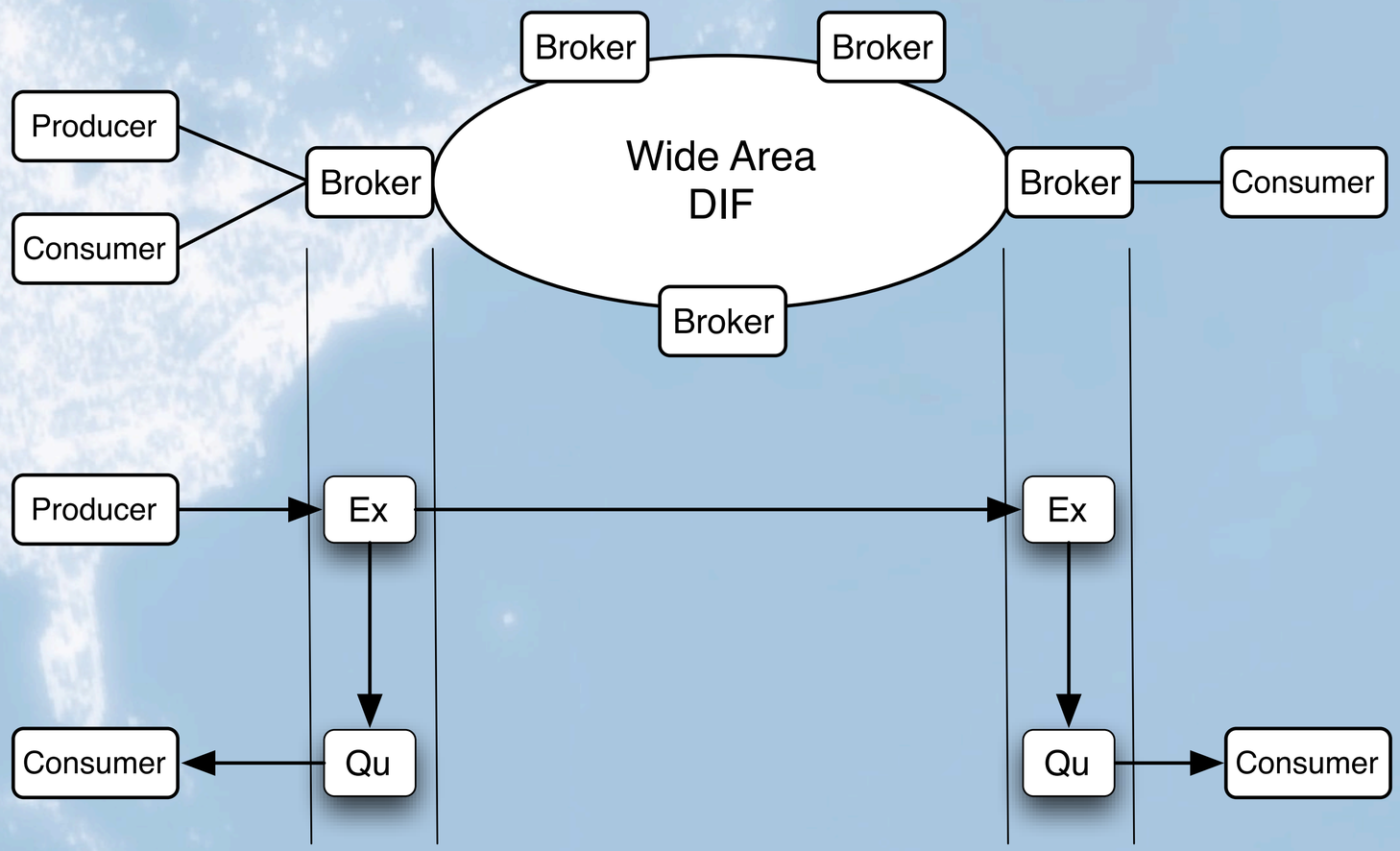


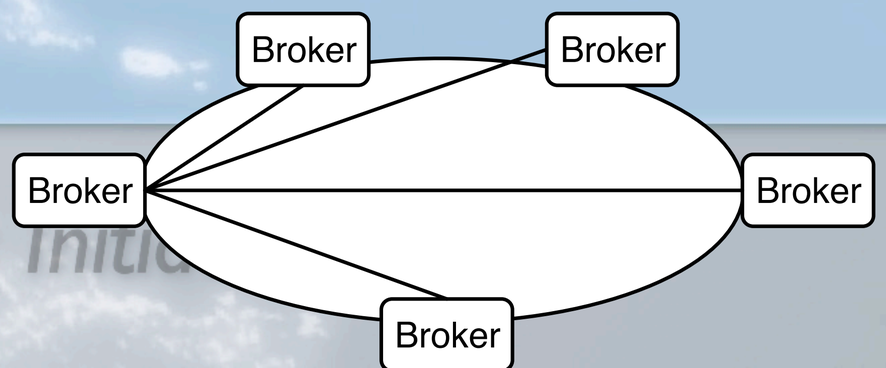
OOI Exchange Space Abstraction

OOI Exchange Space Realized as a Combined AMQP / Distributed IPC Facility (DIF) Abstraction

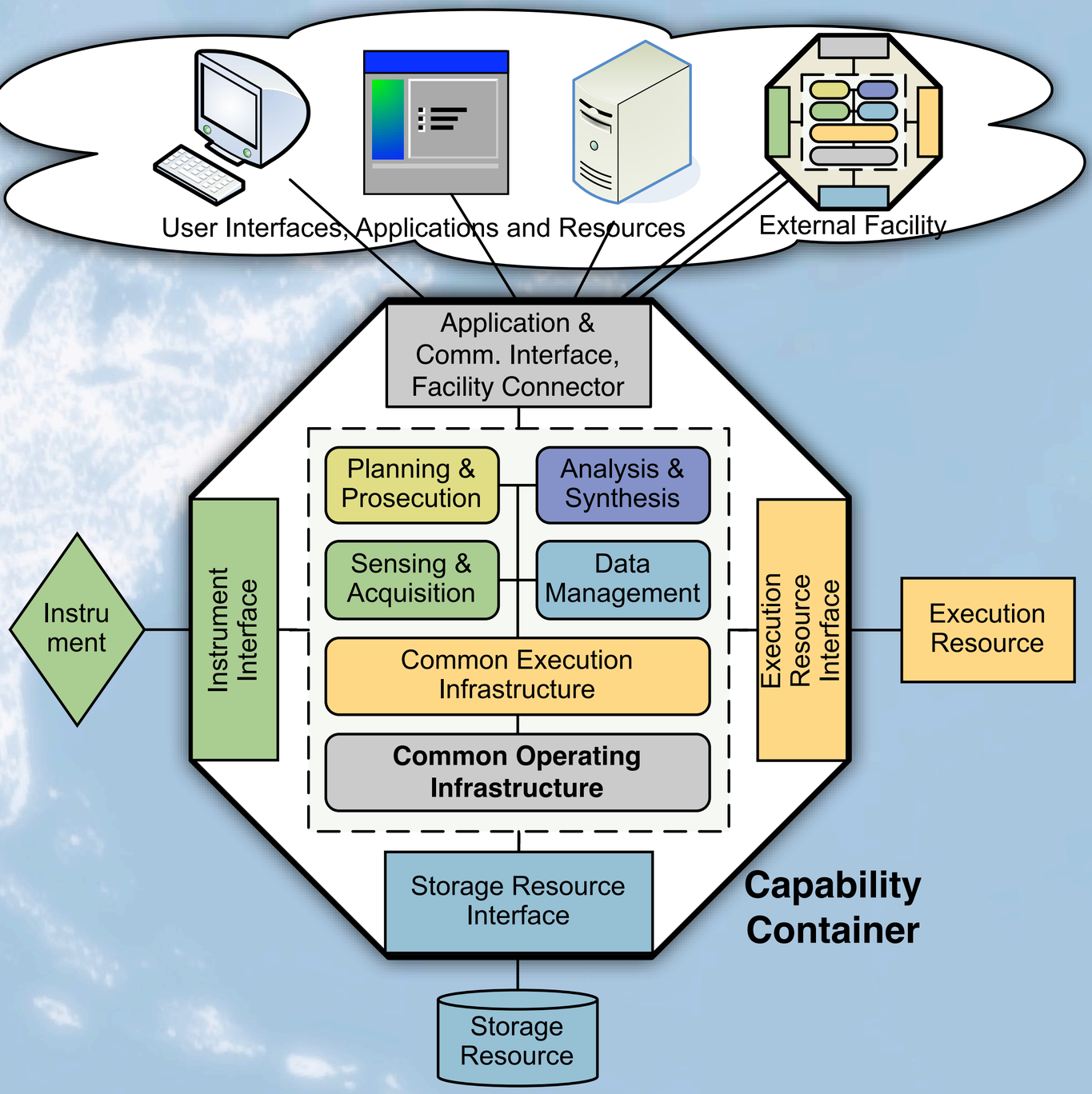


OOI Exchange Space Realized as a Combined AMQP / DIF Abstraction





Composable Capability Containers



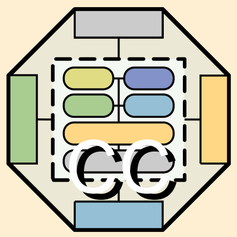
Deployment of Capability Containers

RSN Marine Operations (Marine Network Facility)

Wet-side

Shore-side

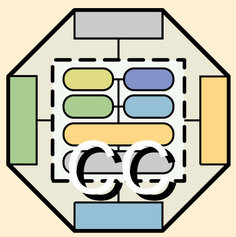
Marine Management



CGSN Marine Operations (Marine Network Facility)

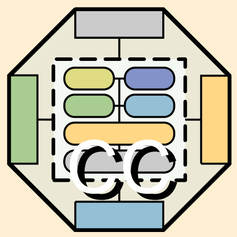
Wet-side

(Execution Point) Instrument Agent



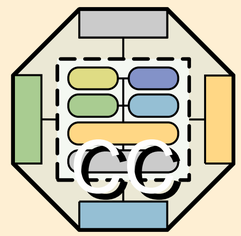
Shore-side

Marine Management

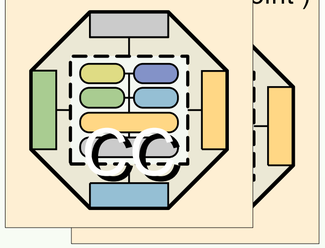


Integrated Observatory Operations (Observatory Network Facility)

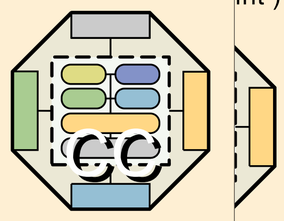
CyberPoP (Acquisition Point)



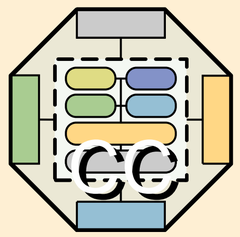
CyberPoP (Distribution Point)



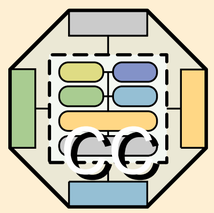
CyberPoP (Execution Point)



CyberPoP (Acquisition Point)

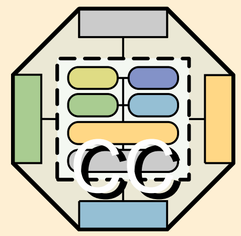


Observatory Management

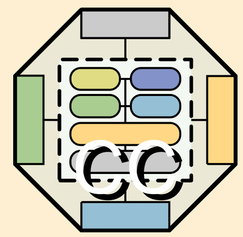


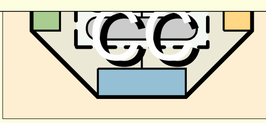
End User Operations (User Facility)

(Execution Point) MATLAB



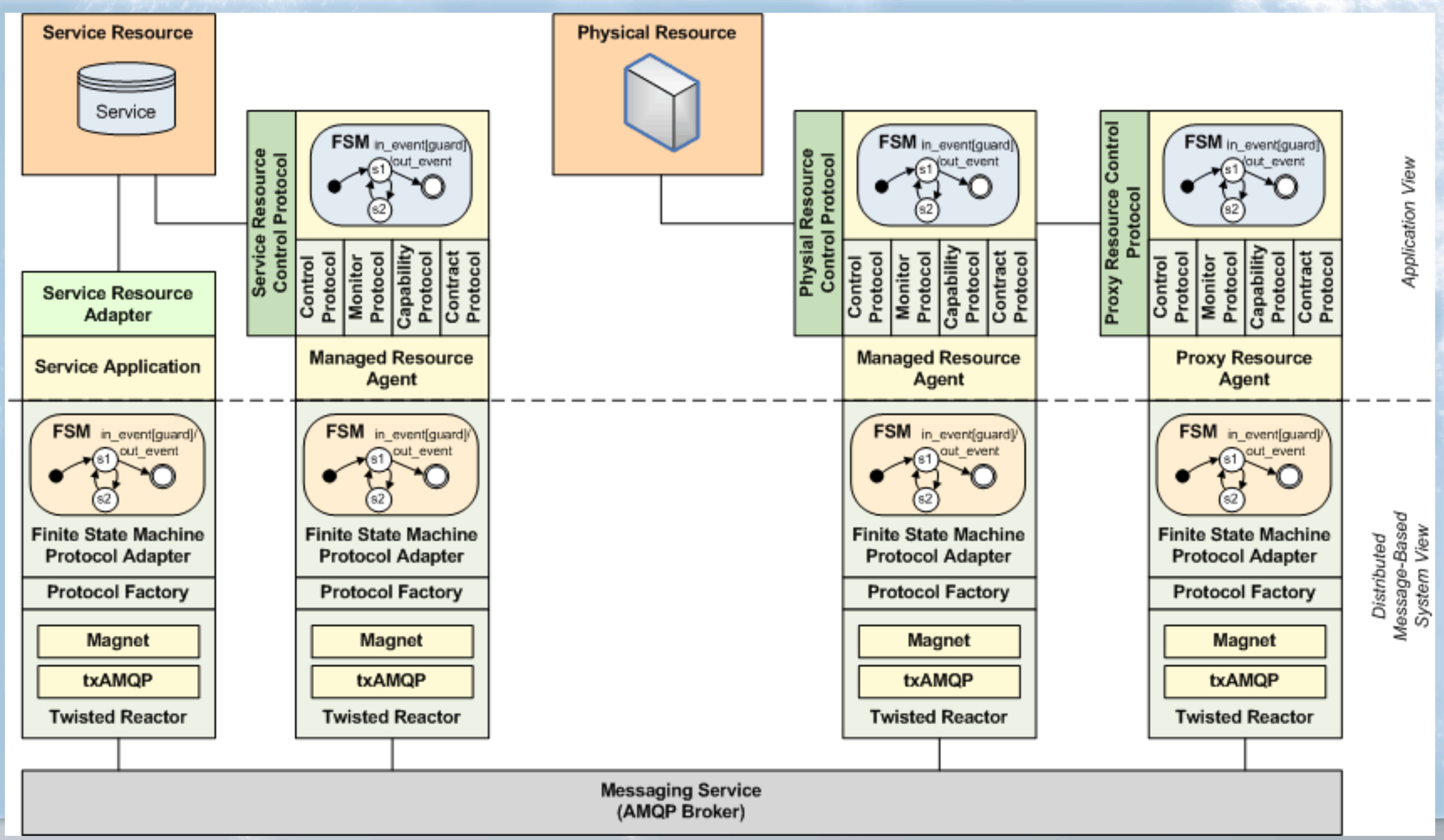
(Execution Point) ROMS



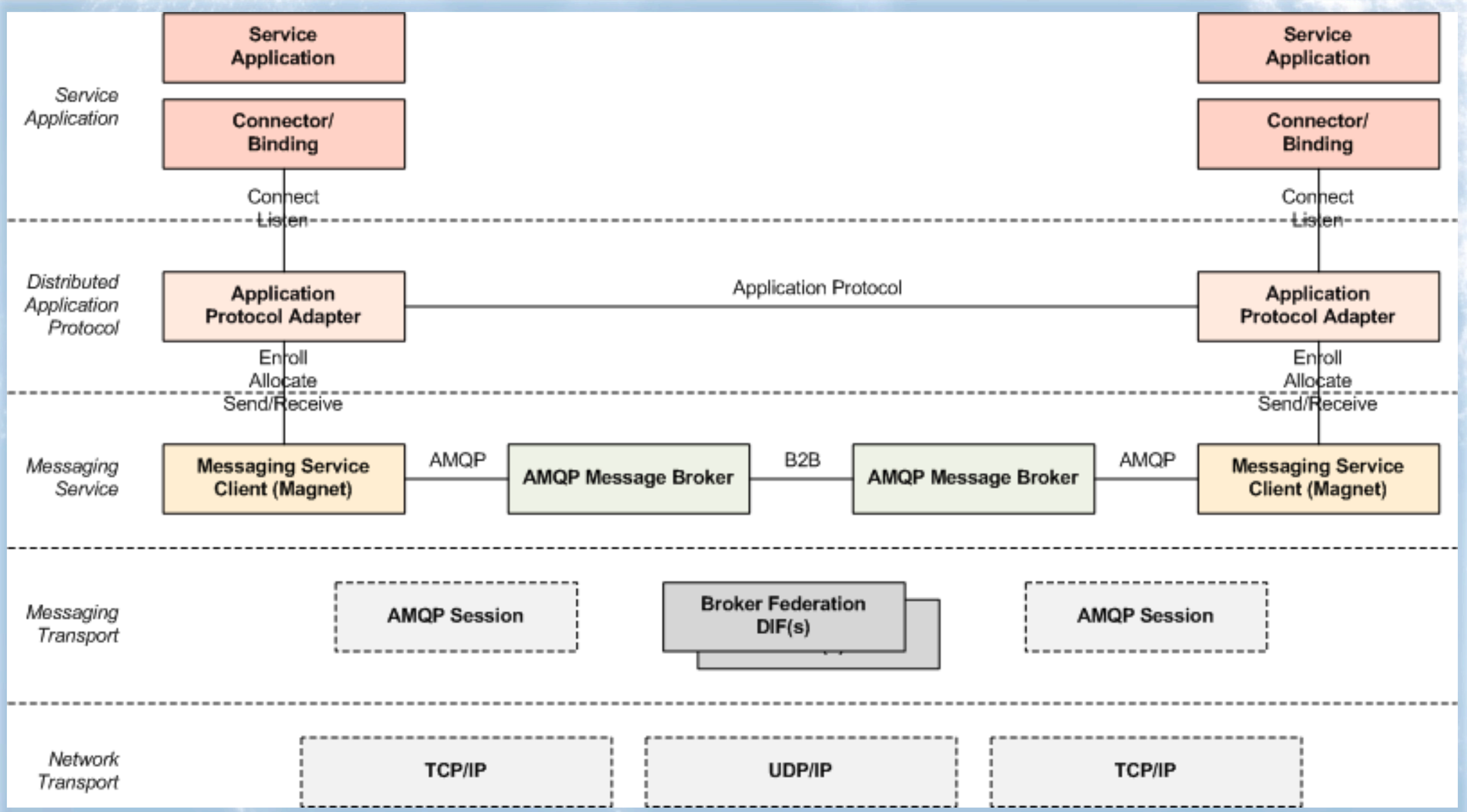


Ocean Observatories Initiative

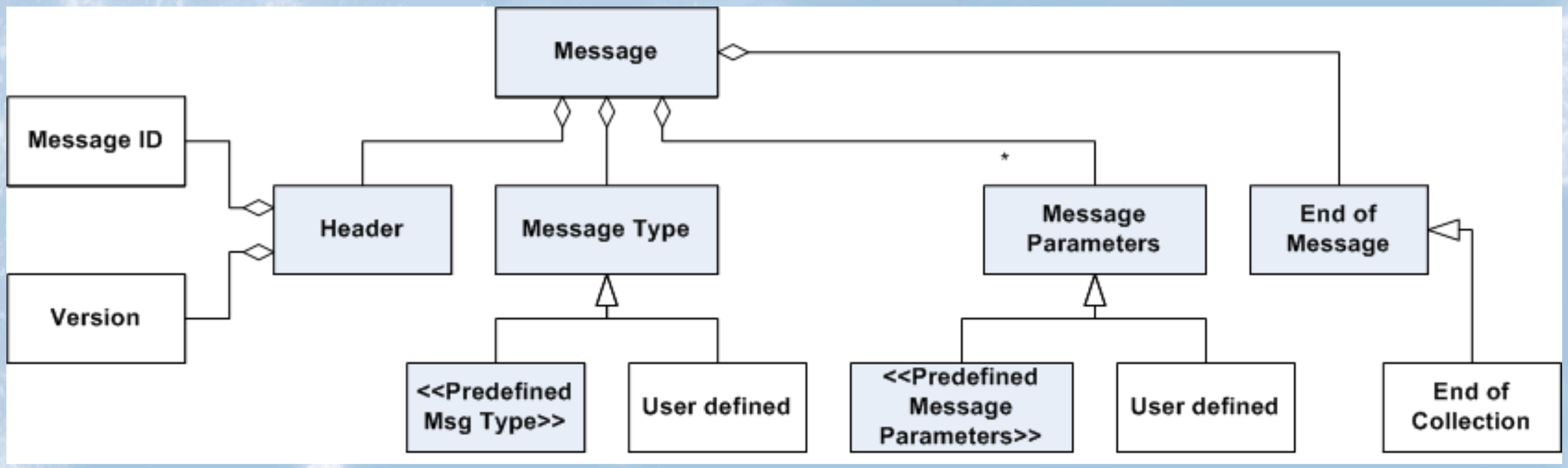
Distribute Application Facility



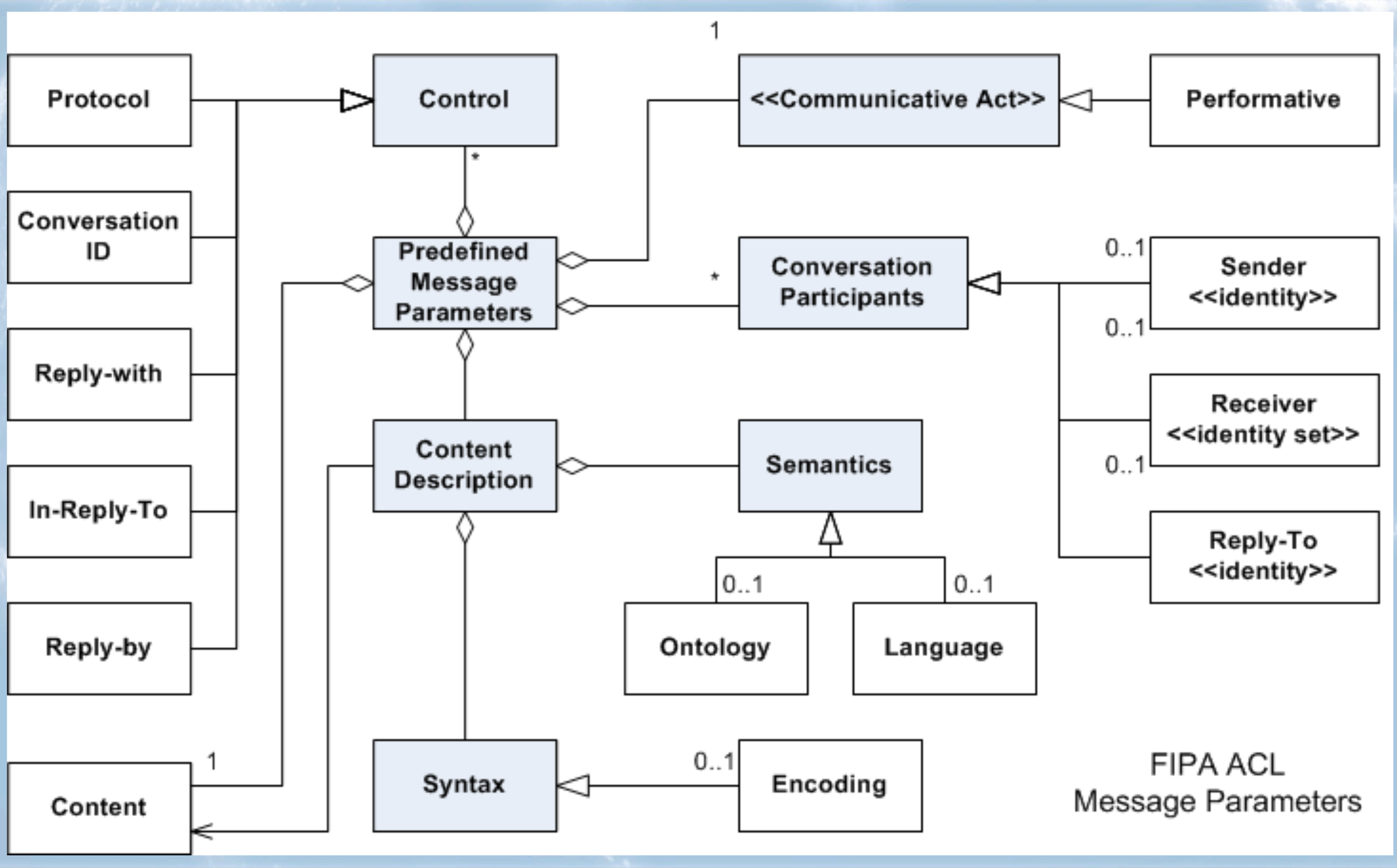
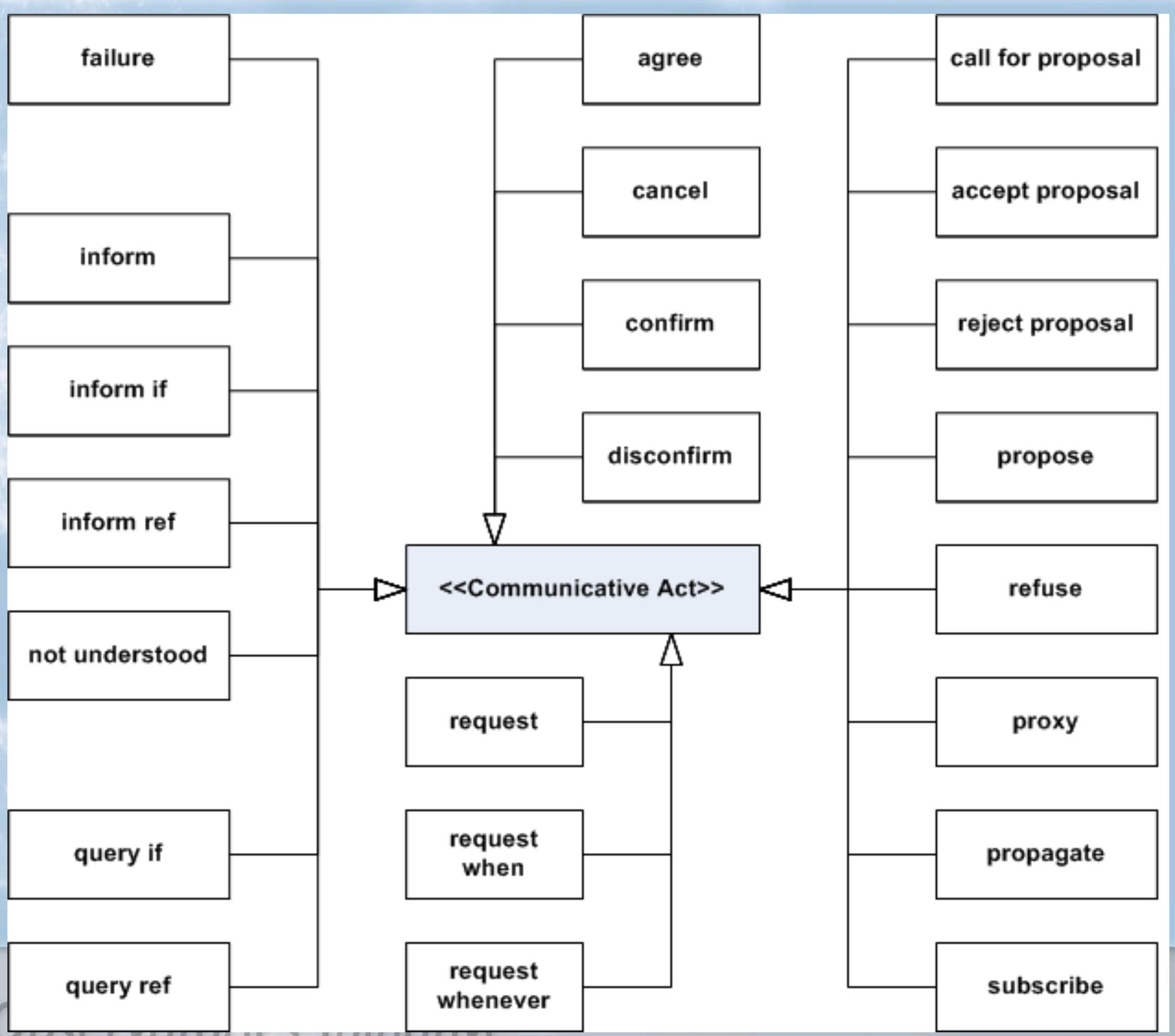
Messaging Service



FIPA Message Header



Predefined FIPA Message Parameters



Predefined FIPA Message Types